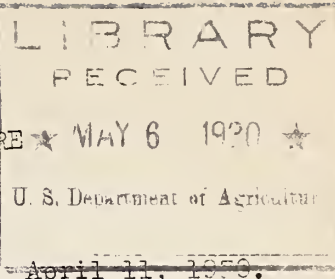


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THE BOXWOOD LEAF MINER

The boxwood leaf miner, in the adult stage, is a small, yellowish to orange fly, but it is a larva, or maggot, during almost the entire time that it inhabits the boxwood leaf. Infestation of boxwood leaves is marked by blisters on the leaves. The maggot stage lasts from about the latter part of May of one year until some time in April the following year. The flies usually appear from the 1st to the 15th of May and their flight period lasts approximately three weeks from the date on which they first come out of the leaves. They usually hover closely about the bushes, inserting their eggs through the under surfaces of the leaves. They tend to spread rapidly through the boxwood in a community where infested box exists.

There are three successful methods of control. One of these, which consists in immersing the infested plants in hot water, is more feasible as a nursery process and would be of little value to the individual with plantings of boxwood.

Fumigation and spraying, with possibly a little clipping, are used for the larger plants that are not to be moved. The fumigation method is very successful, but dangerous, owing to the poisonous nature of the materials used. It has been successfully used by specialists of the Bureau, giving very fine results in control. The method which they have worked out is as follows:

A wooden frame is constructed to form an enclosure of 100 cubic feet, or multiples thereof, the 100 cubic foot size being very convenient and generally consisting of four 2 by 4 inch uprights 5 feet high, two side pieces on each side 5 feet long, and two end pieces on each end 4 feet long. This frame is placed over the boxwood plant and covered with a canvas. For this particular size of frame, a 12-ounce piece of duck 13 by 18 feet, painted with linseed oil on both sides (and allowed to dry afterwards) works very satisfactorily. The canvas is placed over the frame, being folded over the corners, with the exception of the place at which the dose is to be introduced, and the edges which touch the ground are piled with dirt to seal the flaps to the ground. The dosage for each 100 cubic feet consists of 2 ounces, by weight, of sodium cyanide, 2 fluid ounces of sulphuric acid, and 6 fluid ounces of water. The technic of fumigation is as follows: Obtain a large earthenware crock or jar, or a glass beaker. Pour the water into this and slowly add the acid. This jar is placed inside of the enclosure with a piece of board or cardboard tilted over the top to prevent spattering chemicals from getting on the bush or canvas. The canvas at the open corner is then arranged so that this corner can be rapidly closed by folding and sealing the canvas with earth. The cyanide, in a coarse paper bag, is then carefully dropped into the acid and water, the flap quickly folded over, and dirt placed on it. The fumigation lasts for one hour, after which the flap is pulled out quickly and carefully on one side to let the gas

escape. Cyanide is a very dangerous poison to handle, and the gas generated in the tent is exceptionally deadly, so the operator must be careful not to inhale any of it. After most of the gas has had a chance to escape, the flap may be thrown up over the top to permit its complete dissipation, and then the tent may be moved over another bush.

There are several precautions to be observed which will prevent injury to the plants and make the work very successful. One of these is to fumigate only dormant bushes, that is, those which are not growing. Another is to fumigate only bushes that are dry, that is, not wet with dew or rain, etc. A third is not to fumigate when the temperature within the tents can exceed 75 F. This means, usually, an outdoor temperature not exceeding 60 in the shade when it is cloudy, or 55 in the sun. Fumigation is a dangerous method, although very successful, and should, as far as possible, be performed by individuals familiar with cyanide fumigation or familiar with chemicals and the danger of this particular material, or by individuals who are particularly cautious and painstaking in following directions.

Usually the best times of year for controlling the boxwood leaf miner by fumigation are November, late February, and early March.

Control by spraying is as follows: The spray material is prepared by mixing 1 gallon of heavy stock-food molasses, 6 gallons of water, and 10 teaspoonfuls of 40 per cent nicotine sulphate. The spray applications are effective only during the flight period of the adult flies, and to use them successfully the bushes will have to be watched rather closely from late April until the first yellow-orange flies appear by bursting through the under side of the leaves. Commencing with the appearance of the flies, the bushes should be kept sticky (especially the under side of the leaves and the new leaves) with the spray material. Usually three or four sprayings, with an interval of from three to four days between each spraying and the next, are sufficient. A pair of mist-producing spraying nozzles on a Y joint at the end of the spray rod works best, and the nozzles should be held rather close to the bushes and moved over them so as to get as much of the mixture as possible on the under side of the leaves. The objective sought by spraying is the sticking of the flies that are issuing from the old infested leaves and those which return to the new foliage to lay eggs. After all of the flies have disappeared, it sometimes aids in the control of the miner if the bushes are then clipped to remove as much of the new growth and the new leaves as possible. This measure is especially valuable when for any reason there has been a good chance for the flies to lay eggs in the leaves, as when a rain during the flight period of the adults has prevented spraying or has washed off the spray previously applied.

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